

SECTION VI – SEWER

VI-1. DESIGN GUIDELINES

Sewer collection lines and appurtenant structures within the City of Paso Robles jurisdiction shall be constructed in accordance with the details shown on plans and specifications and as approved by the City Engineer.

A. Design Flow

An average flow of 100 gallons (378.5 liters) per person per day for residential developments shall be used for design purposes, with the peak flow double the average flow. Pipes shall be sized to handle peak flows with pipe flowing half full.

The design to establish the size of pipes shall include ultimate upstream development in accordance with density established in the General Plan, the City Sewer Master Plan or as determined by the City Engineer.

B. Gradient

The following table indicates the minimum slopes acceptable for the design of sewer pipelines in the City of Paso Robles. Lesser slopes may be approved by the City Engineer where topographic features precludes the use of the table below. It is not acceptable practice to reduce the slope below the minimum standards simply to reduce the depth of or cost of construction:

<u>Diameter</u>	<u>Slope in Feet/Foot (Minimum Acceptable)</u>
6" (15.24cm)	.0050
8" (20.32cm)	.0050
10" (25.40cm)	.0025
12" (30.48cm)	.0020
Private lateral	.02

Sewer pipes larger than 12" (30.48cm) diameter shall be designed to the approval of the City Engineer.

Wherever a change in the size of the pipe, or an angle of 20 degrees or greater in alignment occurs; the flowline of the pipe flowing into the manhole shall be a minimum of 0.17 foot (5.08cm) above the flowline of the pipe flowing from the manhole, otherwise a drop manhole may be required.

Unless special provisions for erosion protection have been provided, and approved by the City Engineer, design velocities for sanitary sewer pipelines shall not exceed ten feet (10') (3.05m) per second nor be less than 2 ft./sec. (0.61 m/sec.). The maximum design discharge shall not exceed the flow at critical design discharge shall not exceed the flow at critical slope and velocity. Sanitary sewer pipe should not be designed for flow conditions at critical slope and velocity.

C. Location

1. All sanitary sewers designed for the collection and transportation of domestic sewage and/or industrial wastes shall be constructed and installed within rights-of-way dedicated for public streets or roads, unless such construction or installation is determined to be impractical by the City Engineer.

2. The location of the sanitary sewers installed in streets shall normally be six feet **(6') (1.83m)** southerly or easterly of the centerline of the street and a minimum depth of 6' (1.83m) or approved by the City Engineer.
3. No sanitary sewer, including **private lateral**, shall be located within fifty feet **(50') (15.24m)** of a water well.
4. Location of sewer lines in easements shall be kept to a minimum. whenever possible, sewers shall be placed in the public roadway. Where sewer lines are located within easements, the easements shall conform to the following
 - a. Be offered on the final map, or
 - b. Be granted to the entity accepting and maintaining the sewers, or
 - c. Be dedicated to and accepted by the City of Paso Robles.
 - d. The minimum unencumbered width of any easement for sanitary sewer purposes shall be fifteen (15) feet (4.57m) wide; with a paved 12' (3.66m) minimum wide road surface. In special cases of terrain, depth of sewer line, etc. the required easement width may be increased as determined by the City Engineer. All easements shall include right of ingress and egress over adjoining property for maintenance, replacement and operation. Fences will be allowed if 2 lockable gates with openings of 12' (3.66m) min. width are provided.
5. Unless otherwise approved, all sewer lines shall be located a minimum of ten feet (10') (3.05m) horizontal (outside diameter to outside diameter) if parallel to a water main and three feet (3') (.91m) (outside diameter to outside diameter) if perpendicular to water main. Unless otherwise approved sewer lines shall be designed such that it is below the water main.

D. Special Design with Water Main

In the interest of public health and to minimize the possibility of contamination of the public water supply, special construction requirements shall be met at any time that the separation between water and sewer lines is less than that described in these Standards. These requirements apply to construction of a water main, sewer main, sewer lateral, or any other type construction causing the separation to be less than minimum standard. All special construction required is to be discussed thoroughly with the City Engineer prior to starting any work and is subject to the City Engineer's approval. Special construction requirements shall be as outlined in **Drawing No. G-18 and G-19** and Class 200 PVC or D.I.P. shall be used.

E. Alignment

Sewer pipelines shall be designed so as to have a minimum of curvature both horizontal and vertical.

Whenever possible sewer lines shall be laid out in a straight line between structures. Curved sewer lines will be allowed under the following conditions:

1. All curve data shall be shown on the plans.
2. Minimum radius of curvature and joint deflections shall be as recommended by the pipe manufacturer and approved by the City Engineer.

3. All deflections shall be at the pipe joints or by specially manufactured mitered pipe sections.

F. Depth and Size

1. **Depth** - The normal design depth of a sanitary sewer system shall be six feet (6') (1.83m) so as to obtain a cover of 48 inches (1.22m) for the house service lateral at the property line. Under certain topographic conditions lesser depths may be approved by the City Engineer.
2. **Size** - The normal minimum sewer main size shall be eight (8) inches (203.2mm) inside diameter. Six (6) inch (152.4mm) diameter lines may be used on certain short lines where no possibility of line extensions exists, subject to the City Engineer's approval.

G. Manholes

1. Normal maximum spacing for manholes shall be as follows:

6" to 24" (152.4mm to 609.6mm) diameter	500 feet (152.40m)
27" to 36" (685.8mm to 914.4mm) diameter	600 feet (182.88m)

The spacing of manholes on trunk sewer lines larger than 36 inches (91.44cm) in diameter shall be determined for each individual case.

A sewer on a curved alignment with a radius of less than 400 feet (121.92m) shall have manholes spaced at a maximum of 300 feet (91.44m).

2. Drop manholes shall be required when sewer main flowline coming into the manhole is more than 0.17 feet (5.08cm) above the flowline coming out of the manhole.
3. For sewer mains 12-inch (30.48cm) or larger, the inside wall of the manhole must be lined with Sancon or approved equal.

H. Sewer Clean-out

A clean-out may be used in lieu of a manhole of any stub line with a length of 200 feet (60.96m) or less. any line more than 200 feet (60.96m) in length shall have a manhole at the end. Lateral sewers installed to a subdivision line for future extension shall have a clean-out at the end, if there are any house service lines attached to it, and if it is not over 200 feet (60.96m) in length. Lines longer than 200 feet (60.96m) shall terminate in a manhole with a stub for future extension.

I. Private Laterals

In all new subdivision work, the house service laterals from the sewer to the property line shall be installed at the time the sewer is constructed. Each house service line shall be referenced to the plan stationing. minimum size of any sanitary lateral or side sewer to serve individual residences, etc., shall be nominal four inches (4") (10.16cm) inside diameter. Actual size of laterals larger than four inches (4") (10.16 cm) shall be determined by fixture unit requirements as per the current edition of the Uniform Plumbing Code. Commercial laterals shall be a minimum of six inches (6") (15.24cm) inside diameter. Any laterals greater than 6-inches (15.24cm) shall connect to a manhole at the connection point.

J. Sewage Lift Stations, Force Mains and Treatment Plants

Sewage lift stations are to be discouraged and allowed only by permission of the City Engineer, when no feasible gravity alternative is available. Lift stations shall be sized to be compatible with ultimate development.

All special structure such as treatment plants shall meet all requirements of the State Regional Water Quality Control Board, State and County Health Department and the Engineer. Special structures, such as pump stations, pressure lines and sags, etc., shall require special considerations and approval by the Engineer.

Whenever the design of a sanitary sewerage system include the necessity of a sewage lift station and a force main, the following data shall be submitted for tentative approval before plans are submitted:

1. **Sewage Lift Station** - Minimum distance from a lift station to any residence shall be 50 feet (15.24m) except with advance approval of the Engineer for the specific case.

No lift station shall be constructed with bypasses which will bypass any effluent into any stream or water course.

The design computations for the pumps or ejectors, the type to be used, and a plot plan showing the dimensions of the site and its location with respect to homes or other structures shall be submitted for approval.

An alarm system, which meets the approval of the Engineer, shall be provided on all sewage lift stations. Said system shall be of a type and quality that will easily integrate into a city-wide radio telemetry network. The capacity of the wet-well shall have a two-hour (2 hr) peak flow storage capacity. A built-in automatically activated auxiliary electrical power generator unit and transfer switch shall be provided or, where determined to be feasible, an overflow basin shall be provided with a normally closed manual drain control valve or gate.

2. **Force Mains** - The size and type of pipe to be used and a tentative alignment shall be submitted. Force main materials shall be a minimum of Class 200 or C-900 Blue Brut or as approved by the City Engineer.

VI-2. MATERIALS

A. General

All material that is to become a permanent part of any sanitary sewer or appurtenant structure, shall conform to the requirements for the particular material as set forth in these specifications. The contractor shall supply any and all certificates of compliance, certified field test results or shall perform tests as required to assure the City Engineer that the material being incorporated into the work has met the requirements as specified. Approval from the City Engineer shall be required for use of material not listed in these Standards prior to incorporation of material into the plans.

B. Pipe and Pipe Joining Material

All pipe or conduit shall be the size, material and strength as shown on the plans. All pipe and fittings shall be marked or stamped with the trade brand name of the manufacturer, and stand all internal or external loads applied. Supporting strength of conduits as installed to safely carry imposed gravity loads and superimposed loads (including a suitable factor of safety) shall be in accordance with manufacturer's recommendations.

C. Kind of Pipe

All sanitary sewer lines shall be clay pipes, cast iron pipe, PVC pipe or type approved by the City Engineer.

1. **Clay Pipe** - Clay pipe (CP) and fittings shall be new, first quality pipe and comply with the specifications for Extra Strength Unglazed Clay Pipe ASTM Designation C700 - Latest Revision. Joints for bell and spigot CP shall conform to ASTM Designation C425. Installation of CP shall comply with ASTM Designation C-12. The only allowable variations from the above recommended practices will be as definitely specified in other sections of these standards or by written approval of the City Engineer.

2. **Polyvinyl Chloride (PVC) Pipe**

PVC pipe may only be used for gravity sewers under the following conditions:

- a. PVC pipe must meet ASTM Standard 3034/SDR 35.
- b. Deflection tests shall be required as prescribed by the City Engineer.
- c. CL 150 PVC (AWWA C 900) or better.

3. **Forced Main Pipes**

Pipe used in construction of force mains shall be PVC Class 200 or better and shall have a working pressure rating of 200% operating.

D. Castings

All castings for manhole rings and covers, flushing branch frames and covers, or other purposes, shall be cast iron meeting the requirements of Specifications ASTM Designation A48, Class 25. The quality shall be such that a blow from a hammer will produce an indentation on a rectangular edge of the castings, without flaking the metal. Before leaving the foundry, all castings shall be thoroughly cleaned.

E. Manholes

Manholes shall be watertight structures constructed by placing precast concrete sections on a poured concrete base or a pre-cast concrete base. Poured-in-place manholes shall not be used unless specifically called for in the Special Provisions. For lines 12" (30.48cm) and larger manholes shall be lined with Sancon or approved equal.

1. Temporary covers of 3/8" (7.62mm) steel plate of sufficient size to adequately cover the opening shall be placed on the cone until the pavement is completed. Suitable locating ribs shall be welded to the underside of the cover to hold it in place during the grading and paving operations.
2. When adjusting an existing manhole to grade and the total depth of the throat from the top of the frame to the bottom of the throat exceeds 24 inches (60.96cm), the upper portion of the manhole shall be removed to the first full-size manhole section. The upper portion shall then be reconstructed as outlined above.
3. Manholes shall be 24" (60.96cm) above natural ground or high water mark when not in paved area or have water-tight lid.

VI-3. CONSTRUCTION GUIDELINES

A. Lines and Grades

All lines and grades will be given by the Consultant and the City Engineer shall be informed twenty-four hours in advance of the times and places at which work is to be done in order that lines and grades may be inspected and necessary measurements made with a minimum of inconvenience and delay. All stakes and marks once given shall be fully protected and preserved. Flow line elevations shall be established at all changes in grade and at 25-foot (7.62m) intervals.

B. Excavation for Sewers

1. Unless otherwise specified, the excavation for sewer pipe shall be an open trench, excavated to six inches (6") (152.4mm) below the bottom of the pipe. This undercutting shall be refilled with suitable bedding material as specified in **Section VI-3H** of these Specifications. Where the trench is in granular or sandy material, the pipe may be bedded in the native material in lieu of importing bedding material providing it complies with the specification for bedding material providing it complies with the specification for bedding material. The City Engineer shall determine the suitability of the native material.
2. When the trench is in an existing paved area, the pavement shall be saw cut and broken ahead of the trenching operations. The proper tools and equipment shall be used in marking and breaking so that the pavement will be cut accurately on neat and parallel lines 6 inches (152.4mm) wider on each side than the trench width. When in the opinion of the City Engineer the remaining paving has been damaged, an additional 12 inches (304.8mm), or to competent material, shall be saw cut from each side to the approval of the City Engineer.
3. Whenever the bottom of the trench is soft, yielding, or unsuitable as a foundation for the pipe, sufficient crushed rock or coarse, clean gravel shall be rammed into the soft material until, in the opinion of the Engineer, a suitable condition is achieved. If such treatment does not provide a proper foundation, the unsuitable material shall be removed to a depth determined by the City Engineer, that when replaced with bedding material, it will provide a stable foundation.
4. When water is encountered, the trench shall be kept dewatered until the laying and jointing of the pipe, and placing of the bedding material has been completed, inspected, and approved. The Contractor shall place not less than six inches (6") (152.4mm) of 2-1/2" (63.5mm) maximum size rock below the required bedding material, or otherwise de-water the trench in a manner which has received prior approval of the Engineer. Ground water pumped from the trench shall be disposed of in such a manner as will not cause or be a menace to the public. The manner employed to dispose of water pumped from an excavation shall be subject to the approval of the Engineer. Soil plugs shall be provided in such areas of high ground water to prevent migration of groundwater.

C. Safety

All work shall be performed in accordance with the requirements of the State of California Division of Industrial Safety.

The Contractor shall conform to the permit requirements of the Division of Industrial Safety and shall obtain a trenching permit directly from said State Office prior to such activity.

The Contractor's attention is directed to the provisions of Section 6705 of the Labor Code concerning trench excavation safety plans. (Note: Contractors are hereby advised that the independent monitoring regulations of OSHA, as enforced by CAL OSHA officers, is to be complied with at all times).

D. Bracing and shoring

As required by the "Trench Construction Safety Orders" of the California State Industrial Accident Commission, sufficient bracing, shoring and access equipment shall be installed in trenches to insure the safety of workmen, and to protect and facilitate the work. Where practicable all such bracing and shoring shall be removed from the trench as the backfilling proceeds.

E. Tunneling

Tunneling shall not be permitted unless approved by the City Engineer.

F. Laying of Sewer Pipe

The pipe shall be laid in conformity to the prescribed line and grade, and each pipe length checked to the grade lines. Three consecutive points shown on the same rate of slope shall be used in common, in order to detect any variation from a straight grade. In case any such discrepancy exists, the work shall be stopped and the discrepancy immediately reported to the city Engineer. In addition, a string line shall be used in the bottom of the trench to insure proper alignment and grade.

Pipe shall be laid continuously upgrade with the bell of the pipe forward. Each length of pipe shall be laid on a firm bed and shall have a true bearing for the entire length. No wedging or blocking up of the pipe will be permitted.

Both bell and spigot shall be clean and lubricated before the joint is made. Care shall be taken that nothing but the joint-making material enters the joints.

When for any reason, pipe laying is discontinued for an hour or more, the open end of each line shall be closed with a close-fitting stopper.

The Contractor's attention is called to the required use of short lengths of sewer pipe to provide curves, flexibility, and prevent cracking or shearing failures. The use of short lengths of pipe is particularly required but not necessarily limited to these locations: (1) inlets and outlets to all manholes; and (2) vertical and horizontal curvilinear sewers.

G. Pipe to be Placed by Boring or Jacking

The work contemplated under this heading consists of placing cast iron pipe or other pipe of approved material, usually in a conductor pipe, under a paved roadway, street, or railroad to a true line and grade. The conductor pipe, under a paved roadway, street, or railroad to a true line and grade as shown on the plans, by means of boring or jacking operations. The equipment and method of operation shall be approved by the Engineer before proceeding with the work. The excavation for the boring operation shall be kept to a minimum, but shall be of sufficient dimensions to satisfactorily complete the work. If so required, bracing and shoring shall be provided to adequately protect the workmen and the roadway or railroad.

The conductor pipe casing shall be placed closely behind and in conjunction with the boring operation. The bored hole shall be not more than two inches (5.08cm) in diameter larger than the conductor pipe. Guide rails shall be accurately set to line and grade shown on the plans.

The pipe to be placed inside the conductor pipe casing shall have non-rigid joints and shall be installed by the use of 4"x 4" (10.16cm x 10.16cm) redwood skids and stainless steel bands or other suitable centering devices. Blown in sand shall then be pumped into the conductor pipe to completely fill the annular space around the pipe for its full length unless other methods, approved by the City Engineer, are specified on the approved construction drawings.

H. Trench Backfill

1. Bedding material, approved by the Engineer and meeting the minimum standards listed below, shall be deposited and compacted to 90% relative compaction in the trench uniformly on both sides of the pipe for the full width of the trench and to a depth of 12 inches (30.48cm) over the top of the pipe. (See Standard Drawing U-2). For pipes larger than 48' (1.22m) diameter, bedding material shall be placed up to spring-line.

Sand Equivalent 20

<u>Sieve Size</u>	<u>Percentage Passing Sieve</u>
1" (2.54cm)	100
No. 4	80-100
No. 200	0-15

The sand equivalent of 20 shall also be required outside of the roadway prism.

2. The balance of the backfill shall contain no rock, stones or boulders in excess of 4 inches (10.16cm) in its greatest dimension, and shall be free from all deleterious matter. It shall be compacted to a relative compaction of 90% for the remainder of the trench, except that the top 12" (30.48cm) shall be brought to 95% compaction. The backfill under and around any and all pipes shall be thoroughly consolidated before any additional material is placed.
3. Compaction methods must be carried out so no damage or displacement of the pipe results.
4. Any trenches improperly backfilled, or where settlement occurs, shall be reopened to the depth required for proper compaction, then refilled and compacted, with the surface restored to the required grade and compacted and smoothed off.
5. All waste material shall be disposed of outside of the City right-of-way or as approved by the City Engineer.

I. Private Lateral

Private laterals shall be constructed as shown on the Standard Drawings. (See Standard Drawing F-6)

If it becomes necessary to locate a house sewer lateral less than 50 feet (15.24m) from a water well, it shall be constructed of cast or ductile iron pipe or class 200 PVC pipe material.

Whenever house sewer laterals are to be installed as part of the contract for the construction of the sewer main, the use of saddle tees and wyes will not be permitted.

That portion of any house sewer lateral to be placed under an existing curb and gutter and/or sidewalk shall be done by tunneling. Cutting of the existing curb and gutter and/or sidewalk will not be permitted. After

tunneling, the backfill will consist of two-sack concrete and sand slurry (with a head elevation higher than the bottom of concrete curb) and vibrated in place.

All house sewer laterals shall be considered as part of the lateral sewers for the purpose of the testing and final approval as set forth in Section **VI-2**.

The location of house sewer laterals shall be permanently indicated by embedding the letter "S" in the curbface directly above the line. In new subdivisions when the house sewer laterals are installed before the curb is constructed, it shall be the sewer contractor's responsibility to place the "S" in the curb after it is placed. When house sewer laterals are constructed in existing easements or streets where curbing does not exist, 1/2" x 36" (1.27cm x 91.44cm) steel rebar shall be driven in the ground to 2 ft. (7.32cm) below the surface directly above the sewer line at the property line. Every house sewer lateral shall be so marked before final acceptance will be given of any job.

J. Connection to Existing Manholes

Connection to existing manholes shall be made by carefully core-drilling an opening in the wall of the manhole, inserting the end of the pipe (with elastomeric ring-seal) through the opening flush with the inside wall, and packing the opening around the pipe with a stiff mix of cement mortar, thoroughly compacted to form a watertight connection. The mortar shall be troweled smooth and flush with the interior surface of the manhole. Channelizing of the flow through the manhole shall conform to the details shown on the standard Drawings for new manholes.

The Contractor shall notify the City Engineer 48 hours in advance before any connection is made to existing structures. Work shall be scheduled so that interruption of flow is held to a minimum.

VI-4. FINAL COMPLETION

Prior to final approval, and after compacting backfill, all sewer lines shall be tested for leakage by a standard low pressure air test.

Testing shall be done when streets have been graded and compacted to 95% but before placement of A.C. paving.

A. Air Test Procedure

Each section of sanitary sewer between two successive manholes shall be tested by plugging all pipe outlets with suitable test plugs. Air shall be slowly added until the internal pressure is raised to 4.0 pounds per square inch gauge pressure (psig). The compressor used to add air to the pipe shall have a blow-off valve set at 5 psig to assure that at no time the internal pressure in the pipe exceeds 5 psig. The internal pressure of a 4 psig shall be maintained for at least two minutes to allow the air temperature to stabilize after which the air supply shall be disconnected and the pressure allowed to decrease to 3.5 psig. The recommended minimum time requirements for the 0.5 psig pressure drop from 3.5 psig to 3.0 psig, shall not be less than the times shown below.

Should any test on any section of pipeline disclose an air loss rate greater than permitted, the contractor shall, at his own expense, locate and repair the defective joints or pipe sections. After the repairs are completed, the line shall be retested until the air loss rate is within the specified allowance - i.e. the pipe line holds the pressure within the allowable pressure drop of 0.5 psig for a minimum time equal to the time(s) shown in the table on the following page.

Timetable:

<u>Pipe Size</u>	<u>Time</u>
4" (101.6mm)	2 min. 32 sec.
6" (152.4mm)	3 min. 50 sec.
8" (203.2mm)	5 min. 6 sec.
10" (254.0mm)	6 min. 22 sec.
12" (304.8mm)	7 min. 39 sec.

B. Test Procedure - Force mains

Test procedures for force main shall be the same for water mains.

C. Video

All new sewer main installations shall be video taped prior to placement of A.C. paving.

The video shall be VHS format and color quality. The video shall have a digital display with a date and pipeline footage as a minimum tape reference. Audio dubbing is encouraged. The film must also be clear and legible with adequate lighting.

All videos shall include a written log. The log shall have a legible map and a North arrow. Manholes shall be marked respectively and directional arrows indicating flow shall be shown.

A gauge in front of the camera shall be used to measure the depth of debris or standing water. The gauge shall show increments of not greater than it" (12.7mm). **If this gauge submerges more than 1/2" in depth in standing water, the main shall be reconstructed.**

D. Cleaning

Prior to the acceptance of any sewer line by the City, the contractor shall clean all lines with a Wayne-type sewer cleaning ball under hydrostatic pressure, mandrel for deformation and provide colored video (with super-imposed stationing). Said mandrel shall be the 9-vane design and sized to 95% of the nominal internal diameter of the pipe.

Any stoppage, dirt or foreign matter shall be removed from the lines. All cleaning and testing of sewer lines shall take place after all construction work is completed, up to but not including the final paving. The system will be inspected after final paving is completed and any damage to the system during final paving and cleanup will be corrected before approval.

E. Placement of Road Surfaces and Replacement

PAVEMENT REPLACEMENT SHALL NOT PROCEED UNTIL THE SEWER LINE HAS PASSED THE MANDREL TEST AND THE CITY ENGINEER HAS REVIEWED AND IS SATISFIED WITH THE VIDEO OF THE SEWER LINE.

1. The replacement of roadway structural section over all cuts in existing bituminous pavement shall be six (6) inches (15.24cm) minimum of aggregate base and three (3) inches (7.62cm) minimum of Type B asphalt concrete or one inch greater than existing adjacent pavement. minimum requirements may be increased at the discretion of the Engineer. Alternate structural sections proposed by the consultant are subject to the approval of the Engineer.

Until the permanent pavement is placed, the material at the surface of the trench shall be maintained at all times at a grade level with the street, suitable for the safe passage of traffic. When ready for repairing, the upper portion of the trench shall be excavated to a depth sufficient for installation of the required structural section. Aggregate base shall be placed, compacted and graded. Edges of the existing asphalt concrete shall be saw cut to provide a neat and straight vertical joint. The joint face shall then be cleaned and tacked with asphaltic emulsion. Type B asphalt concrete shall be placed in accordance with section 39 of the State Standard Specifications.

2. Where the sewer trench follows the edge of pavement or is placed in an existing shoulder, the top six inches (6") (15.24cm) of the backfill shall consist of Class II aggregate base compacted to 95%. Shoulders having a greater depth of base material than six inches (6") (15.24cm) shall be replaced with a thickness at least equal to that removed and the approval of the Engineer as to the exact type of replacement in such cases as required. The finished replacement shall be rolled with steel drum (or equal) and finished to make the best possible connection to the existing pavement.
3. Any exceptions to the above will be indicated on the plans, except that replacements of heavier pavements shall be of a thickness at least equal to that removed, with the approval of the Engineer.
4. The replacement of all pavement and shoulder surfaces as designated above shall be in conformance with **STREETS SECTION** of these Improvement Standards and Specifications as to materials and methods of construction.

F. Temporary Pavement

In any case where a trench is cut in an arterial or collector street, a temporary minimum 2" (5.08cm) thick asphalt plant-mix-cutback surface shall be placed immediately after the backfill has been completed and removed just prior to placing the permanent surfacing material.

G. Clean-up

During the progress of the work, the Contractor shall keep the entire job site in a clean and orderly condition. Excess or unsuitable backfill material, broken pipe, or other waste material shall be removed from the job site. Spillage resulting from hauling operations along or across existing streets or roads shall be removed immediately by the Contractor. All gutters and roadside ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the Engineer.

Before final acceptance of the work, the Contractor shall carefully clean up the work and premises, remove all temporary structures built by or for him, remove all surplus construction materials and rubbish of all kinds from the grounds which he has occupied and leave them in a neat condition.